2.5
2.2
2.0
100 mm
1.0
1.1
1.25
1.4
1.6
2.8
3.2
3.6
2.5
2.2
2.0
1.8
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz1234567890
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890
1.0 mm
1.5 mm
2.0 mm
A5

DOCUMENT RESUME

ED 322 881 IR 014 494

AUTHOR Hass, Jacqueline M.
TITLE The Discourse of Educational Computing and the Practice of Teaching.
PUB DATE Apr 90
NOTE 19p.; Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 1990).
PUB TYPE Speeches/Conference Papers (150) -- Viewpoints (120)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Computer Assisted Instruction; Computer Literacy; *Concept Formation; *Discourse Analysis; Language Usage; Metalinguistics; *Power Structure; Structural Analysis (Linguistics); *Teacher Role; Teaching Methods; *Theory Practice Relationship

ABSTRACT

Although much has been written about the potential applications for computers in the classroom, instructional computing has not so far affected classrooms and teaching practice in the manner or to the degree in which it was foretold. An analysis of the discourse surrounding educational computing reveals conceptions of teaching and prescriptions for practice encoded within the language. For example: (1) computer education is elevated to the status of traditional subjects (reading, mathematics, social studies) and is supported by specialized administrative personnel; (2) in identifying instruction about and with computers as "computer literacy," technical knowledge becomes a form of literacy and represents a power agenda for reform and control; and (3) when the model for computer education elevates those teachers who use computers to positions on advisory committees and/or designates them as staff specialists, their practice is publicly acknowledged as more desirable and commendable. The discourse denies teachers the autonomy, recognition, and validity of their own self-interests, and may result in the role of teaching moving farther from a pedagogic and closer to a management model. (21 references) (DB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED322881

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

The Discourse of Educational Computing and the Practice of Teaching

Jacqueline M. Hass
The University of Wisconsin
Madison, WI 53706

Running Head: DISCOURSE

Paper presented at the American Educational Research Association annual meeting, April, 1990, Boston, MA.

IR014494

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Jacqueline M.Hass
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

The Discourse of Educational Computing and the Practice of Teaching

INTRODUCTION: This study focuses on the question "What social, cultural, and political factors impact upon the expectations of teachers and the practice of classroom teaching when educational computing becomes part of the curriculum?" Although much has been written about the potential applications for computers in the classroom, instructional computing has not so far affected classrooms and teaching practice in the manner or to the degree in which it was foretold. Informal explanations tend to coalesce around such factors as teachers' innate conservatism, their lack of interest in professional development and/or change, and their inability to grasp the rudiments of a sophisticated technology. Additional hours of pre- and in-service training, in-house computer specialists, and new teaching materials have had limited success in bolstering computer use. It appears that other factors must be responsible for this opposition--factors which may conflict with the expectations of teachers and their practice, and which may be located within the discourse of educational computing.

A THEORY OF DISCOURSE: Discourse is a way of thinking, talking, and writing, and functions in the exchange of ideas (Belsey, 1980). It is a social construct, involving the shared assumption of persons and their practices, not only specifying what <u>can</u> be said, but providing "the spaces--the concepts, metaphors, models, analogies--for making new statements in a discourse" (Henriquez

et al, p. 106), which become a contral concern of those doing discourse analysis. An analysis of the discourse surrounding educational computing reveals conceptions of teaching and prescriptions for practice encoded within this language system. These concepts and models may be integrated into the discourse of teaching without a struggle, or they may be the site of contestation and transformation. If the discourse of educational computing positions the teacher and her practice in a way that is not only unfamiliar but also unacceptable the entire field of educational computing as it is now constituted may be both threatening and unacceptable. For this reason discourse analysis is a valuable tool for understanding this fit between educational computing and teaching practice.

DISCOURSE ANALYSIS AS A METHOD OF STUDY: Discourse analysis as a mode of critical analysis, seeks to uncover the assumptions and premises within a given discourse, challenging those beliefs which appear obvious and natural, or just plain common sense. Using Derrida's model of <u>differance</u> in which a meaning is always <u>dispersed</u> in definition to another meaning and <u>deferral</u> in which meaning is constantly subject to change as a context changes, we see that knowledge is dynamic, historical, and contextual (Norris, 1982). <u>Differance</u> also disallows the power of what Derrida calls the "transcendental signified," a meaning which is treated as an unarguable certainty which is priviledged and stable...a first order priority (Cherryholmes, 1989; Crowley, 1989). Thus, deconstruction allows one to unravel the meanings

in a text, and in doing so, it makes gaps or spaces for hidden or new meanings to be articulated. Deconstruction also permits one to break down the rigid boundaries which are typical of a structuralist position, according to Terry Eagleton, "demonstrat(ing) how one term of an antithesis secretly inheres within another"(1983, p. 133). In the case of the discourse of educational computing, theory is priviledged over practice, CAI is priviledged over traditional methods, and an orientation toward future needs supplants current problems. Although this is not a feminist project, much of the support for the a study of discourse and its role in constructing subject positions is drawn from poststructuralist feminist theory (Weeden, 1987). The work of Michel Foucault was used to establish the connection between discourse as a social practice, power relations, and forms of subjectivity (Foucault, 1983).

AN ANALYSIS OF THE DISCOURSE OF COMPUTER EDUCATION: For the purpose of this study, the discourse of computer education was derived through the analysis of two sources: First, the Wisconsin Guide for Curriculum Planning in Computer Education was analyzed, and then a series of district plans for the implementation of computer education. Elements of the discourse of computer education were located in binary opposition to those from another discourse which I shall call the discourse of the practice of teaching. By being positioned first, the elements drawn from the discourse of computer education are favored, or privileged, over those from the other discourse. These

oppositions, in which two concepts are unequally pitted against one another, are a way of acknowledging yet denying difference: the way to understand and affirm one concept is by positioning it alongside its less desirable opposite in a stable relationship. Although the analysis provides a number of oppositions, three are particularly significant for the practice of teaching:

generic design vs. situated planning
teacher as manager vs. teacher as coach
computer specialist vs. classroom practitioner

These dichotomies drawn from the computer education discourse tend to privilege the first term and marginalize the second, creating hierarchies between different forms of knowledge which in turn act to generate a network of subject positions relative to the hierarchies. The institutional effect is rules of discourse which govern not only what is said and not said, but who apeaks with authority and who is silenced. Thus, the discourse of computer education is not neutral or innocuous but has implications for both the definition of the teacher and a particular vision of teaching. I'd like to briefly discuss each of these oppositions.

GENERIC DESIGN vs. SITUATED PLANNING

Because the curriculum documents were prepared at the state level and intended for broad application, I call them generic documents. They depend upon universal or generalizable characteristics of students, schools, teaching, and classrooms. They are organized around a familiar four-step plan, with objectives or goals derived from statements of needs followed by

a scope and sequence schedule and implementation timetables. According to Kliebard in a critique of the Tyler rationale, needs have no meaning without an established norm; one cannot assess needs without acknowledging a set of values and a value position. (Kliebard, 1970, p. 262-264). Therefore, it should be possible to look for or uncover a normative base when needs are used to generate a curriculum document. The Wisconsin Guide asserts that computer education should be "designed to address the need to learn about the computer itself" (p.18), and should provide "competencies [which] students will need to be fully functioning citizens" (p.20). District plans elaborate on these needs: "To succeed in a high technology world, every student needs to achieve a basic level of computer competency or literacy" (Appleton Area School District, p.1). Another district plan suggests that the computer literacy committee engage in a yearly revision of the implementation plan based on "the changes in the technology and student needs" (Mequon-Thiensville School District, p.10). Unfortunately, these needs have little to do with an actual assessment drawn from a study of students after examining value positions. They are merely statements designed to justify the inclusion of a specialized program, presented in a language which implies that an empirical method was employed. It also implies that needs are objective statements rather than the rhetoric of a committee which has a vested interest in computer education. In fact, they are the value positions themselves, clothed in the garb of needs assessment.

This justification for computer education, couched in terms of needs, disguises a technological ideology which suggests (1) that everyone should be taught computer competencies; (2) that success is dependent upon computer competence; and (3) that technological innovations generate student needs. Thus, technology determines what is to happen in the classroom. The issue here is not in fact technological change, but rather whether classroom practice should be defined by a set of external circumstances which have little to do with the actual context. But for the practitioner, needs are context specific: they may be long-range or temporary, they may be for all students or for only one, but they are generated as they are warranted through the practical experience of the teacher, when the class convenes and on the classroom floor. When the local discourse about computer education is centered upon needs defined by non-practitioners and derived from technological innovations which may or may not have much relevance for classroom life, it provides a model of teaching which has little resonance in day-to-day practice. Such a conception denies the 'logic in use' of the activity of design, a logic which relies heavily on the activity itself as it unfolds in the classroom rather than the preplanned agenda derived from a set of design principles (Nunan, 1983). Furthermore, as a function of its discourse, it provides a location from which one may argue, ignore, or even resist; and the space for another model of planning such as situated planning. Plans, according to Lucy Suchman (1987), which direct

action are developed or realized as the action unfolds, and cannot be inferred a priori; they are inherent within the activity itself. Thus plans are always representations of particular situations or contextual circumstances, and occur when an "otherwise transparent activity becomes in some way problematic" (Suchman, 1987, p.50). Plans serve as an "artifact for our reasoning about action, not as the generative mechanism of action" (ibid, p. 39), and are specific, grounded, and non-universal.

This model of planning does not destroy or totally reject generic design, but it does decenter it, allowing situated planning to gain prominence. Generic plans are no longer seen as the driving force of classroom activity but are moved to the margin where they are called upon when one needs to reflect upon an action, where they can be a resource for the anticipation of action. They do not determine action, they are not the means to the end, but instead are a supplement to the embedded and embodied skills upon which the success or failure of an activity depends (Suchman, 1987). The teacher in the classroom, then, relies upon these embodied practices, gained through experience and refined through post hoc reflection, to direct the course of action.

TEACHER AS MANAGER vs. TEACHER AS COACH: Although the manifest mission of the Wisconsin Computer Education Guide is the process of curriculum planning in computer education, the relationship between technology, computers, schooling and teaching are both

explicitly and implicitly included. The guide defines our present as the "electronic age" (p. 2) and "the information age," (p. v) and links needed changes in education to the proliferation of new technologies. Thus, through the use of technology, specifically computers, teachers can become the instructional manager, delegating tasks of test scoring, grading, grouping, diagnoses, prescription, and performance profiling to the machine (p. 10) so (s)he can be efficient and productive in other classroom tasks, to become, in the Guide's words, "a more effective facilitator of learning." As a manager, the teacher effectively orchestrates the classroom environment, removed not only from routine tasks but also from decision-making about students, a political and valuative enterprise of great significance. As we all know, creating a living classroom is a complex moral and political activity, not an engineering feat, and it requires the teacher to grapple with the conditions, the process, and the outcomes of decisions (Tom, 1984). Decisions of passing or retention, or how groups are constituted and taught, are not simple decisions and should not be determined by a computer after processing student performance records. Furthermore, when decisions are generated from quantifiable data, teaching is mechanized: first one must collect adequate data and transpose it into a form which can be used in machine processing; and second, intervene in order to fine-tune a connection or to smooth out a discontinuity, in order to keep the classroom process humming along. The aim is to <u>reduce</u> complexity, to

generalize the irregularities, and to seek visible and quantifiable manifestations of progress (Bullough, Goldstein, Holt, 1984), which may be displayed numerically and graphically but which also tend to flatten the reality of the classroom (Apple, 1979).

In contrast to a manager model, the teacher as a coach is eminently concerned with the complexity of the classroom situation. Coaching is embedded in the context of the classroom, and, to quote Suchman again, "draws pedagogical strength from the exploitation of the unique details of particular situations" (Suchman, 1987, p. 19). As a coach, the teacher is uses mistakes that students make not as data for what is not known but as evidence for what is known, so that mistakes become constructive and generate further learning (Burton and Brown, 1982). The teacher as coach, then, becomes concerned with diagnosing a student's strengths and weaknesses through observation and practice experience. Teaching is immediately more intricate, more intense, and more difficult, requiring, according to Burton and Brown, "techniques for determining what the student knows...as well as explicit tutoring principles about interrupting and advising (which) require a theory of how a student forms abstractions, how he learns, and when he is apt to be more receptive to advice" (Burton and Brown, 1982, p. 80). Information about student's learning and knowledge is not decontextualized and fed to the computer as data but is

recontextualized for use in the interaction between student, teacher, and subject matter at the level of practice. In privileging the teacher-as-manager, teaching is moved away from an interactive framework and assumes a bureaucratic function, whose mission is to account for and control events and contingencies rather than debate, resolve, and learn from the disorder. It requires likeness rather than difference and favors unitariness rather than plurality.

COMPUTER SPECIALIST vs. CLASSROOM PRACTITIONER: Specialists in computer education prepared the guide I examined and enjoin districts to develop a computer coordinator, and a mechanism for program development and implementation, drawing upon those individuals who have demonstrated an ability and willingness to implement instructional computing. This top-down model assures every district-community of having a group of experts and advocates in the drivers' seat, willing to commit to the basic skill of computer literacy for all students and empowered to effect change. This group will be responsible for developing the district's philosophy of educational computing, and a rationale for the program that is to be implemented in the schools. They will identify the instructional needs of the district, set long-term as well as yearly goals, and informs the community of the program. They will be prepared to debate the issues of computer education, and their expertise and their interests will frame the deliberation, and will become part of the discourse surrounding

school purposes and subjects.

In part, the state curriculum guide functions to organize a particular view of educational computing because it is part of a discursive formation. Michel Foucault's concept of a discursive formation helps one to understand the relationship between language, social institutions, and the knowledge that is worthwhile school knowledge. Discourses are "practices that systematically form the objects of which they speak" (quoted in Dreyfus and Rabinow, 1983, p.62), and discursive relations are the relationships between discourses that are used in specific contexts to determine certain actions. "They determine the group of relations that discourse must establish in order to speak of this or that object, in order to deal with them, name them, analyze them, classify them, explain them" (ibid., p.62-63). The Wisconsin curriculum guide is instrumental in constructing discursive relations that structure the language about, and the understanding of, computer education in three ways.

First, computer education is posited as a subject for study and given a thirteen-year scope and sequence. It is elevated to the status of traditional subjects (reading, mathematics, social studies) and is supported by specialized administrative personnel.

Second, in identifying instruction about and with computers as "computer literacy" (p. 21), the document defines technical knowledge as a form of literacy, and circumscribes it with social

and economic consequences. The "computer illiterates" will be left behind, consigned to the lower echelons of the job market and to substandard economic prosperity and status. As such, literacy represent not a neutral outcome or a set of skills and information, but rather a power agenda for reform and control.

Third, when the model for computer education elevates those teachers who use computers to positions on advisory committees and/or designates them as staff specialists, their practice is publicly acknowledged as more desirable and commendable. Teachers not using computers are not only pressured to change; they are in a defensive position.

In truth, it may be that teachers do not resist change so much as they resist being told that they must change, and especially when the changes are dictated by non-practitioners using the language of control. Computer education may not be the issue at all; it may instead be the emphasis on "the effective use of computers in instruction" at the expense of other concerns; the importance of being "made to feel comfortable and confident" with something with which they have had very little input and the apparent minor regard for the things they have already accomplished (Wolcott, 1977). The discourse denies teachers autonomy, recognition, and the validity of their own self-interests. The discourse of staff development, though promising a supportive atmosphere for all involved in implementing computer education, reinforces hierarchical power relations by placing decisions about computer education in-

service in the hands of administrators and specialists. It privileges the knowledge and expertise of the computer specialist instead of the teacher, and is significant for the subject position of "teacher" in computer education.

THE DISCOURSE OF EDUCATIONAL COMPUTING AND THE PRACTICE OF TEACHING: Throughout this examination of computer education, the non-neutrality of the discourse has become apparent. The discourses serve to create hierarchies of knowledge which act to form a network of knowledge-bearers: who is concerned about the status of the nation, who is professional, who is forward-thinking, who understands technology, who is computer literate, and ultimately, who is a "good teacher." But while it is powerful and compelling, it is neither uniform nor unitary, and it is under constant challenge by competing discourses for the right to speak for some teachers or all teachers. It is this challenge, and the ways in which discourse acts as the site for a struggle over meanings, that may help to explain the reception of computer education by teachers. Discourse is the location of power relations. Power precedes speech because language is socially produced and located within existing social institutions whose rules, norms, and interests determine what can and cannot be said and who is counted as a speaker and who a listener. Power may be visible, as in the case of state statutes, administrative rules, or even standards for competency; or it may operate invisibly, as in the ways teachers think of themselves as competent or how they act in relation to new materials or

curricula. The planning process in the documents analyzed positions the teacher at the tag-end of a long curricular maneuver: a participant in one of the committees, if (s)he is adequately knowledgeable and skilled at the outset, but otherwise a recipient of a new set of controlling documents. (S)he is in need of further professional education (in-service) aimed at changing the existing practice in order to accommodate the challenges of "information age technology." The outcomes of schooling are narrowed and more restricted; the legitimate concerns of the teacher about daily happenings, pupil learning and behavior, instructional issues, and professional relationships may be reduced or even demeaned. When the teacher is drawn into the vision of a new age of computerized work, school, and play--a totalizing but invisible form of power--the legitimacy of his/her own knowledge and concerns and the validity of his/her meanings are marginalized.

Second, power also structures relations between different subjects within and across discourses (Weeden, 1987, p.114). Power, in the form of managerial authority, is secured by assuming a derivative relationship between theory and practice: it is theory which directs practice. Experts are those who possess theoretical knowledge which is presumed to be reliable, objective, valuable, and more desirable because it has the capacity to change as theory is amended. Theory does not have the deep-rooted conviction and tradition of practice and the reliance on tacit understanding which makes it less specific and

unquantifiable, and thus harder to change (Nunan, 1983). Those with theoretical or expert knowledge, the manager or the computer specialist, will therefore have more power when the current agenda embraces educational change.

At bottom, then, the language of computer education may serve to deny the classroom teacher her own expertise. When school districts are directed to identify teacher competencies which may be required before computer education can be successfully implemented (Wisconsin Guide, pp. 32-33), teaching is reduced to isolable behaviors which may be specified, measured, and (if need be) evaluated. Further, when competencies include using software to "provide reinforcement" (p. 32), or "motivate students" (p. 32), or "reward students" (p. 33), computers become devices for eliciting and controlling student behaviors and teaching is demeaned in the endeavor. Eventually, the role of teaching may move farther from a pedagogic and closer to a management model.

REFERENCES

Apple, M.W. (1979). Ideology and curriculum. London: Routledge & Kegan Paul.

Belsey, C. (1980). Critical Practice. London & New York: Methuen.

Bullough, R.V., Goldstein, S.L., & Holt, L. (1984). Human interest in the curriculum: Teaching and learning in a technological society. New York: Teachers College.

Burton, R.R. & Brown, J.S. (1982). An investigation of computer coaching for information learning activities. In D. Sleeman & J.S. Brown, (eds.), Intelligent Tutoring. New York: Academic Press.

Cherryholmes, C.H. (1988). Power and criticism. New York: Teachers College Press.

Computers in instruction: A plan for the Appleton Area School District. (March, 1988). Unpublished curriculum guide, Appleton Area School District, Appleton, WI.

Crowley, S. (1989). A teacher's introduction to deconstruction. Urbana, IL: National Council of Teachers of English.

Cuban, L. (1986). Teachers and machines. New York: Teachers College Press.

Dreyfus, H.L. & Rabinow, S.E. (1983). Michel Foucault: Beyond structuralism and hermeneutics. Chicago: University of Chicago Press.

Foucault, M. (1983.) Afterword: The subject and power. In H.L. Dreyfus & S.E. Rabinow (eds.), Michel Foucault: Beyond structuralism and hermeneutics. Chicago: University of Chicago Press.

Eagleton, T. (1983). Literary theory. Minneapolis: University of Minnesota.

Henriquez, J., Holloway, W., Urwin, C., Venn, C., & Walkerdine, V. (1984). Changing the subject: Psychology, social regulation, and subjectivity. London: Methuen.

K-12 Computer Curriculum Guide. Unpublished curriculum guide, Mequon-Thiensville School District, Mequon, WI.

Kliebard, H.M. (1970). The Tyler rationale. School Review, 78, 259-272.

Norris, C. (1982). Deconstruction: Theory and practice. London and New York: Metheun.

Nunan, T. (1983). Countering educational design. New York: Nichols Publishing.

Suchman, L.A. (1987). Plans and situated actions. Cambridge: Cambridge University Press.

Tom, A.R. (1984). Teaching as a moral craft. New York: Longman.

Weedon, C. (1987). Feminist practice and postructuralist theory. Oxford, England: Basil Blackwell.

Wisconsin Department of Public Instruction. (1987). A guide to curriculum planning in computer education. Madison, WI: Department of Public Instruction.

Wolcott, H.F. (1977). Teachers versus technocrats. Eugene, OR: University of Oregon Press.